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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/738,407	12/16/2003	Muthu Venkatachalam	Intel-008PUS	8314

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Daly, Crowley & Mofford, LLP
c/o PortfolioIP
P.O. Box 52050
Minneapolis, MN 55402

EXAMINER	
SOL, ANTHONY M	
ART UNIT	PAPER NUMBER
2616	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/738,407	VENKATACHALAM ET AL.	
	Examiner	Art Unit	
	Anthony Sol	2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 December 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-45* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-16 and 19-45* is/are rejected.

7)☒ Claim(s) *17 and 18* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *16 December 2003* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The informal drawings are not of sufficient quality to permit examination. Accordingly, replacement drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to this Office action. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action.

Claim Rejections - 35 USC § 101

2. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claim 42-45 are rejected under 35 U.S.C. 101 because the phrase "computer-readable-medium" is the accepted language in computer-processing related claims (see MPEP 2106.01)

For claims 42 and 44, lines 1-2, it is suggested that phrase "An article comprising: a storage" be replaced with "A computer-readable" in accordance with acceptable language in computer-processing related claims.

For claims 43 and 45, line 1, it is suggest that the phrase "The article" be replaced with "The computer-readable medium" in accordance with acceptable language in computer-processing related claims.

Appropriate corrections are required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 2 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 2 recites the limitation "the second microprocessor engine" in line 5. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1- 16, 19-32, and 34-45 are rejected under 35 U.S.C. 102(e) as being anticipated by Pub. No. US 2004/0213255 A1 ("Brinkerhoff").

Regarding claims 1, 38, and 42,

Brinkerhoff shows in fig. 7 a first multi-threaded processor engine 74 configured for connection to a serial link HSSI (para. 91, line 11)

Brinkerhoff further shows in fig. 7, second multi-threaded processor engine 63 such as the MIPS (para. 90, line 2; Note: MIPS uses multithreading), coupled to the first multi-threaded processor engine by an interface 68, to process data received by the first multi-threaded processor over the serial link and to provide the processed data to the first multi-threaded processor engine for transmission over the serial link (para.89-91).

Brinkerhoff discloses one or more communication data structures usable by the first and second multi-threaded processor engines to control interaction therebetween (para. 99, *Such memory or memories may also be configured to store configuration data for configuring system components,* ***data structures****, or other specific non-program information*; para. 98, *one connection may include a CPU interface that allows configuration data to be sent from CPU 62B to* ***configuration registers*** *on selected line cards 70*).

Regarding claim 2,

Brinkerhoff discloses a scheduler 806, which may be configured to shape the output from system 800 by controlling the rate at which data leaves an output port (para. 104).

Regarding claim 3,

Brinkerhoff discloses a Frame Relay interface (para. 93).

Regarding claim 4,

Brinkerhoff discloses HDLC data (para. 118).

Regarding claims 5 and 6,

Brinkerhoff discloses ATM data (para. 118).

Regarding claim 7,

Brinkerhoff discloses interworking logic 802 that convert frames to ATM cells and vice versa (claimed Inverse Multiplexing for ATM)(para. 121).

Regarding claim 8,

Brinkerhoff discloses HDLC frames and ATM cells (paras. 118, 121).

Regarding claim 9,

Brinkerhoff shows in fig. 7, a TDM 67B where several data streams of lower data rate is combined into one data stream of a higher data rate.

Regarding claims 10, 12, 25, 30, 37, and 41,

Brinkerhoff discloses memory arbiter configured to handle the timing and execution of data access operations requested by various system components (para. 127).

Regarding clam 11,

Brinkerhoff discloses storing channel number and port number identifiers (para. 119).

Regarding claims 13, 14, and 16,

Brinkerhoff discloses a scheduler 806 that may be configured to synchronize output data from switching logic 810 to various output ports, for example to prevent overbooking of output ports and also manage memory 808 access requests from various system components in fig. 7 and 8 (para. 127).

Regarding claim 15,

Brinkerhoff shows in fig. 7 memory 65 and in fig. 8 memory 808. Brinkerhoff discloses that memory 808 may be configured as a stack FIFO (para. 119).

Regarding claim 19,

Brinkerhoff shows in fig. 2, FIFO buffers 202A and 202B and transceiver buffer 212. Brinkerhoff discloses ports configured to handle ATM cells (para.118).

Regarding claim 20,

Brinkerhoff discloses that system 800 operates in various formats including Frame Relay and ATM (para. 118).

Regarding claims 21, 22, and 23,

Brinkerhoff discloses that as data is received at serial ports, it is initially processed by protocol conversion and parsing logic 804 and is determined where bytes and frames/cells start and end. Brinkerhoff further discloses that data from memory 808 is then classified as either ATM or Frame Relay (paras. 119, 120).

Regarding claims 24, 31, 32, 36, and 40,

Brinkerhoff discloses that line cards 70 performs functions such as encryption and other functions (claimed co-processor)(para. 97).

Regarding claim 26,

Brinkerhoff discloses that the serial link can be T1, E1, Ethernet or Frame Relay (para. 93).

Regarding claims 27 and 44,

Brinkerhoff shows in fig. 7, a first multi-threaded processor engine 70,

Brinkerhoff further shows in fig. 7, a second multi-threaded processor engine 63 operable to process data received from a network via a network interface 68.

Brinkerhoff discloses that the first multi-threaded processor engine is configured to operate as a co-processor for the second multi-threaded processor engine (para. 97, Brinkerhoff discloses that line cards 70 performs functions such as encryption and other functions (claimed co-processor)).

Regarding claim 28,

Brinkerhoff discloses that interfaces 68 may be implemented as interface cards, also referred to as line cards (para. 91). Note that line card 70 has processor 74.

Regarding claim 29,

Brinkerhoff discloses a physical layer (claimed external media device)(para. 129).

Regarding claim 34,

Brinkerhoff shows in fig. 7, a line card 70 to couple to one or more data Links (see para. 118, ATM), the line card comprising a network processor 60 that comprises: a first multi-threaded processor engine 74, a second multi-threaded processor engine 63, coupled to the first multi-threaded processor engine by an interface 68, configured to process data received over the one or more data links via a network device (para. 129, *physical layer*) or the first multi-threaded processor engine when such processor is configured for use as a physical layer device to receive and transmit serial data (para. 118, *serial port*) over at least one of the one or more data

links, and to provide the processed data to the first multi-threaded processor engine for transmission if the data that was processed was received from the first multi-threaded processor engine (see figs. 2 and 7 and paras. 89-91).

Brinkerhoff discloses one or more communication data structures usable by the first and second multi-threaded processor engines to control interaction therebetween (para. 99, *Such memory or memories may also be configured to store configuration data for configuring system components, **data structures**, or other specific non-program information*; para. 98, *one connection may include a CPU interface that allows configuration data to be sent from CPU 62B to **configuration registers** on selected line cards 70*).

Regarding claims 35, 39, and 43,

Brinkerhoff discloses a scheduler 806 that controls the rate at which data leaves an output port (para. 104).

Regarding claim 45,

Brinkerhoff discloses one connection may include a CPU interface that allows configuration data to be sent from CPU 62B to configuration registers on selected line cards 70 (para. 98). Brinkerhoff further discloses memory arbiter configured to handle the timing and execution of data access operations requested by various system components (para. 127).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claim 33 is rejected under 35 U.S.C. 103(a) as being unpatentable over Brinkerhoff in view of U.S. Patent No. 6,356,951 ("Gentry").

Brinkerhoff does not disclose hashing function performed by the first mutli-processing processor.

Gentry discloses using a hash operation on the packet's flow key that was generated by header parser 106 (col. 49, lines 4-23).

It would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention was made to modify the connection shaping control method of Brinkerhoff to use a hash function on the packet's flow key generated from the header as taught by Gentry. One skilled in the art would have been motivated to make the combination to generate a value that is smaller in magnitude (Gentry, col. 49, lines 10-12).

Allowable Subject Matter

9. Claims 17 and 18 are objected to as being dependent upon a rejected base

claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Muller (US6389468B1) teaches distributing network traffic processing on a multiprocessor computer.

Baker (US2002/0108037A1) teaches process and streaming server for encrypting a data stream.

Schultz (US2004/0190512A1) teaches processing packet information using an array of processing elements.

Spets (US6643276B1) teaches data gateway and method for conveying data to a base site in a communication system.

Lim (US7106696B1) teaches limiting the rates of data to/from a buffer.

Chakrabarti (US2004/0120314A1) teaches general packet radio services over GSM.

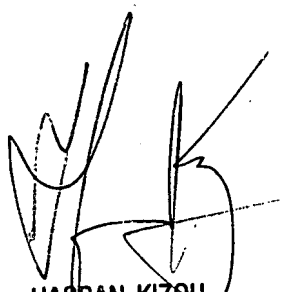
Twomey (US2003/0131228A1) teaches system on a chip for network storage devices.

Spirent Communications teaches Inverse Multiplexing for ATM – Scalable ATM Network Access, White Paper, January 2003.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anthony Sol whose telephone number is (571) 272-5949. The examiner can normally be reached on M-F 7:30am - 4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Kizou can be reached on (571) 272-3088. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



HASSAN KIZOU
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600

AMS

6/7/2007